

# Lighting up Zambia

The impacts of 1.5 years of  
Beyond the Grid Fund for Zambia

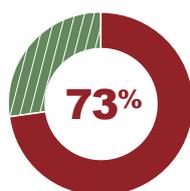


**The Power Africa: Beyond the Grid Fund for Zambia (BGFZ) has kick-started the development of a thriving market for off-grid clean energy services in Zambia, and is on track to bring modern energy access to 1.6 million people by 2021.**

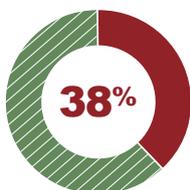
**The programme, which was launched in 2016 with an initial capitalisation of USD 23m, is funded by the Swedish Government and implemented by REEEP.**

## Introduction

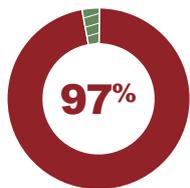
Reliable access to modern energy is a widely accepted precondition for economic development and prosperity. Over 70% of all Zambians lack any access to modern energy. Expansion of the national utility grid to the country's vast, sparsely populated rural areas is in the near term neither economically nor technically feasible. Even in peri-urban areas close to the grid, expansion is slow and connecting individual households is costly, so that people living within a few hundred meters from the grid often have to wait for years to be connected.



of Zambians lack energy access, which is 12.1 million people



of Zambians living in urban areas lack energy access



of Zambians living in rural areas lack energy access

Off-grid energy solutions are a technically viable, affordable, quickly deployed and reliable alternative, but the market for these solutions has struggled to take off. Off-grid energy businesses have had great difficulty accessing start-up or scale-up capital and thus have been largely unable to build up the capacity to deliver energy to rural areas. BGFZ has acted as a trailblazing investor, incentivising off-grid energy businesses to enter or scale up their operations in the country, and has already resulted in a cascade of new investment into the country's off-grid energy space.

*Katoba village in the Chongwe district is less than 60 kilometres from Zambia's capital of Lusaka, but a world away in terms of infrastructure and services available to its inhabitants. Vitalite's agent Mary Mpupuma is changing this, providing her community with affordable solar home systems.*



## BGFZ Story

### Agent of impact

Lister Sithole is a farmer and VITALITE Zambia agent in Chongwe, east of the Zambian capital of Lusaka. She operates from her mother's shop. A mother of five, she is able to balance home life and business thanks to the flexibility of being an agent. Using one of VITALITE's solar home systems herself, she can also keep the shop open later at night. Lister plans to one day open a shop of her own next door, and offer more solutions for the farming community.

Kennedy Matabula is a maize farmer, selling his produce at the Soweto market in Lusaka. He has two systems, and is already planning for his next one.



▲ Lister with two of her daughters and her grandmother Belita Kalimangombe.

“ I became interested when I saw other customers with the system. They told me how to buy; it's extremely affordable thanks to the instalments. It's not difficult to find 4 Kwacha [USD 0.34] per day.”

**Kennedy Matabula**

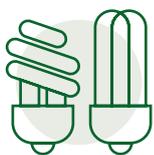
*Kennedy looks at a system in Lister's shop. ▶*



“ I'm just a simple farmer. I earn money through the cooperative and used to have very little. I've now sold to nearly 130 customers and they are all using the Vitalite system. They are happy customers. People respect me in my village; they know me and trust me. I'm proud to have helped people move to a safer, cheaper option for lighting. Candles are expensive and I've helped to give them another solution.”

**Lister Sithole**

## Three Pillars of BGFZ



### Social Impact Procurement

The core of the BGFZ approach is a tailored, results-based incentive scheme for private sector early movers in risky frontier markets. The approach is phased, beginning with a direct incentive scheme to de-risk companies' operations and expansion while they establish themselves in the market.

Rather than a distinct physical asset or service, BGFZ procures a public good with enormous social impact: the provision of energy services for Zambian consumers. The programme does not buy the energy services on behalf of customers; it closes the 'viability gap', on a per-connection basis, incentivising rollout and scaling up in areas that would – under current circumstances and in the absence of BGFZ – not represent viable markets for companies. This social impact procurement forms the backbone of the BGFZ approach.

When a funding window is open, companies can submit a bid to BGFZ committing to the deployment of energy services of a certain power output to a certain number of customers, in exchange for a tranche of funding. Winners are selected based on value for money, that is: the social impact they commit to delivering per \$ of public funding; and an extensive due diligence process.

To ensure that the energy services provided meet the needs of the Zambian market and Zambian consumers, we have developed a series of criteria defining Energy Service Subscriptions – or ESS – of various types.



#### WHAT IS AN ENERGY SERVICE SUBSCRIPTION?

In practical terms, BGFZ procures the delivery, to a paying end-user over a minimum period of time, of a modern, clean, affordable, high-quality Energy Service Subscription, or ESS for short. Because there are so many clean energy-related products on the market, both in Zambia and worldwide, BGFZ developed a set of minimum criteria for each ESS, which allows us to support only high-quality products and services. The most important criteria of the BGFZ are quality, warranty and minimum service. Other criteria include power

output and availability, as well as the numbers and types of lights and appliances that can be powered by the service.

Because delivery of energy services at scale will take time, BGFZ puts special emphasis on evaluating and testing the capabilities, track records, and business plans of bidders, so as to minimise the risk of failures throughout the programme period. We monitor each participating firm closely throughout the programme lifecycle, and track the deployment of every single ESS electronically to ensure compliance with the procurement.



## The Platform for Market Change

BGFZ also works with a range of stakeholders to improve market ecosystem conditions through a combination of capacity building and technical assistance, stakeholder outreach and market intelligence development. We call this approach the “Platform for Market Change”.

In Zambia, this Platform has been formalised as the Off-Grid Energy Task Force, embedded in and led by the Ministry of Energy, with secretariat services provided by REEEP. The Task Force gathers stakeholders from the government, donor agencies, finance and the private sector to coordinate activities, share challenges and opportunities, and agree on priorities for action to strengthen the enabling environment for the market. The Task Force can also provide capacity building and technical assistance on demand.

The Off-Grid Energy Task Force meets regularly, and has thus far established working groups committed to:

- Clarifying and improving import regulations for solar energy products and appliances designed for use

with solar home systems: LED lights have received VAT exemption, and work is underway with the Ministry of Finance to clarify regulations for off-grid appliances;

- Drafting a policy to regulate the construction and operation of mini-grids, in consultation with the private sector: This policy is currently going through an approval process by the Energy Regulatory Board.
- Clarifying land rights regulations to de-risk investment in mini-grids: the government is in discussions with mini-grid sector representatives to resolve this issue.
- Identifying approaches to improving the affordability of off-grid energy technology: discussions are ongoing, based on newly shared market analytics;
- Improving the sharing of market intelligence: an online platform for this purpose is under development.



▲  
*Ngwerere is an area just outside of Lusaka, which now has reliable electricity thanks to a mini-grid installed by Standard Microgrid. Project engineer Admire Ncube is able to access live, highly detailed performance and usage data from the mini-grid to help better manage the system.*

**300,000**

The number of connections to be deployed under the contracts.

**37 USD**

The public funding required on average for one connection deployed under BGFZ.

### WHO IS IN THE TASK FORCE?

#### Government of Zambia:

Ministry of Energy (MoE), Department of Energy (DoE), Energy Regulatory Board (ERB), Rural Electrification Agency (REA), Ministry of Finance (MoF), Ministry of National Development Planning (MNDP), Office of the Vice President (OVP).

#### Cooperating Partners:

African Development Bank (AfDB), Department for International Development (DFID; UK), European Union, International Finance Corporation (IFC), Swedish International Development Cooperation Agency (Sida), World Bank, United States Agency for International Development (USAID).

#### Private Sector:

Zambia Renewable Energy Association (ZARENA), the Solar Industry Association of Zambia (SIAZ, currently being formed), and specially nominated representatives from private sector companies in the off-grid sector.



▲  
*Mrs. Fyantondo, a resident of Ngwerere, enjoys sitting on her porch with her daughter in the evenings, now that she has electricity from the mini-grid to power a light.*



## Market Information and Analytics

With its aim to reach 300,000 customers in all ten provinces of Zambia by 2021, BGFZ has the potential to generate invaluable market intelligence, including data on customer willingness and ability to pay. To capture this intelligence, BGFZ combines detailed market analysis with real-time data on deployment of energy service subscriptions. The resulting information is shared through the Off-Grid Energy Taskforce and used to inform investment decisions and policymaking.

BGFZ's rigorous monitoring and evaluation framework is supported by a dedicated automated

software platform: the Energy Data and Information System for Off-grid Networks, or EDISON. EDISON connects to the monitoring systems of each company contracted under BGFZ, and extracts live information on energy service subscriptions sold, including basic information on the customer, mobile money payments and any warranty events. This real-time data is of tremendous value for monitoring and verification of company targets, demonstrating impact to the public, and modelling and analysing business models and market trends to inform planning for further BGFZ funding rounds.

### THE BGFZ COMPANIES

The four companies selected in the first round of BGFZ have been contracted by the Swedish Embassy in Lusaka to deliver clean energy services to 300,000 households, or 1.6 million people, by 2021 – 60% over the initial target of 1 million people. These 1.6m people account for 13% of all Zambians without energy access.

  
Standard Microgrid

  
emerging  
cooking solutions

  
fenix intl

  
VITALITE

## BGFZ Story

### A mini-grid for Ngwerere



Ngwerere is an area on the outskirts of Lusaka, just out of reach of critical municipal services.

The area now has power thanks to a mini-grid installed by Standard Microgrid, which can support 150 homes and businesses. Electricity is sold using an innovative system that works with credits. The price of electricity varies depending on the time of day, to help the company manage demand.

New shops and businesses have opened, taking advantage of the reliable, cheap daytime electricity. In one business, children pay a small fee to watch television. They can also rent gaming consoles.

▲ *Cecelia Miti watches television with her son Godfrey and her grandchildren. Godfrey believes the availability of power is changing the lives of the township's residents.*

“ This company has been good for the community. It's nice to see development here and lights that are always on.”

**Cecelia Miti**



“ We're better informed because we can watch television and listen to the radio more often. It is safer outside because there are more lights. And this company has given me work.”

**Godfrey Miti**

# Impacts

## The Beyond the Grid Fund for Zambia has thus far been highly successful.

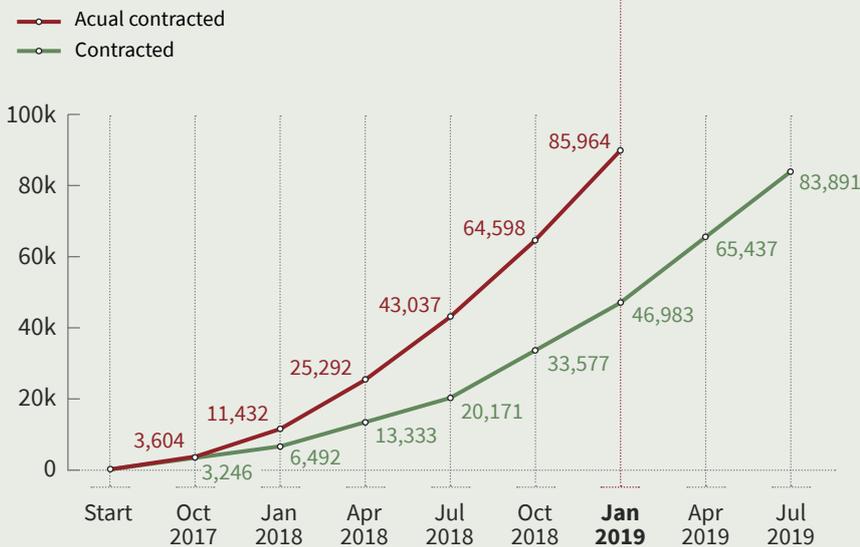
In the year prior to contracting with BGFZ, the four companies sold just over 4,000 Energy Service Subscriptions (ESS) in Zambia.

After 18 months of working with BGFZ, in January 2019, they had sold an additional 85,964, **bringing modern, clean, affordable off-grid energy access to over 447,000 people.**

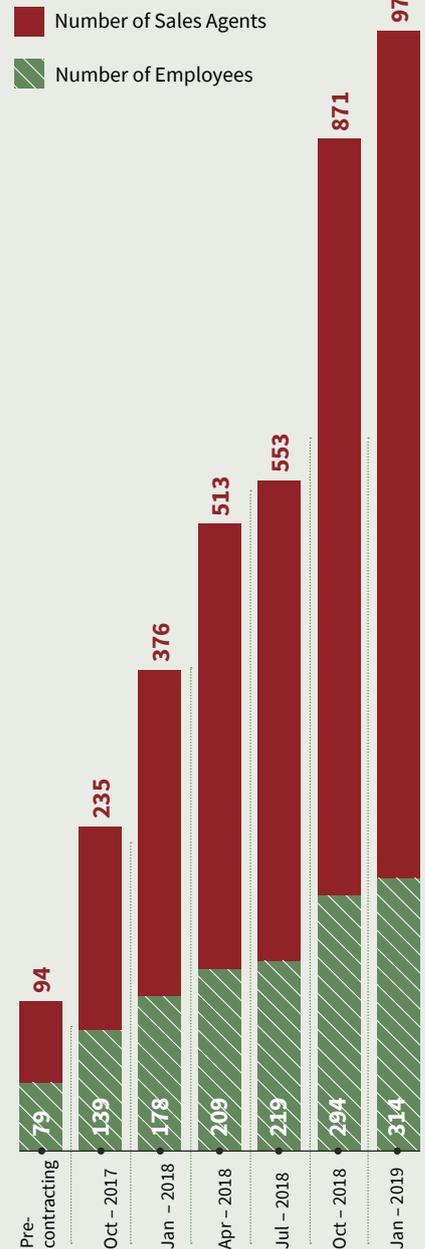
This is 99% above the target for January 2019 as per the contracts.

Before BGFZ, the four companies employed 79 people in Zambia. In early 2019, **they employ 314.** **They have also contracted 882 additional agents.**

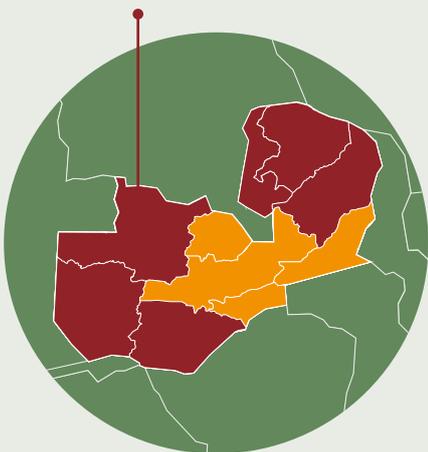
**Energy Service Subscriptions (ESS)  
Jul 2017 - Jan 2019**



**Job Creation in Companies Contracted under BGFZ  
Jul 2017 - Jan 2019**



The companies are now active in all 10 provinces of Zambia (4 before BGFZ)



**25%** of primary customers are women.

The companies have leveraged nearly **\$24m** in co-funding, and another **\$22m** is under negotiation.

Just 4% of this co-funding was provided in the form of grants.

# Socio-Economic Impacts

based on interviews with 164 customers carried out by the Centre for Energy, Environment and Engineering Zambia (CEEEZ).

### New day-to-day activities

48% of customers said that since buying an ESS, they have undertaken new activities they could not previously undertake.

### Income generating activities

25% of customers said they were undertaking new income-generating activities, mainly mobile phone charging and lighting of shops.

### No more candles

52% of customers used candles for lighting before buying their ESS. After buying the ESS, only 2.5% still use candles.

### Money saving

87% of customers confirmed the ESS saves them money. Savings are mostly invested in food, feed for animals and servicing loans.

### More and better education

96% of customers said their children studied more since they acquired the ESS; 91% said their children now attended school more.

### The main benefits of the ESS according to customers:



**Improved communication by mobile phone**



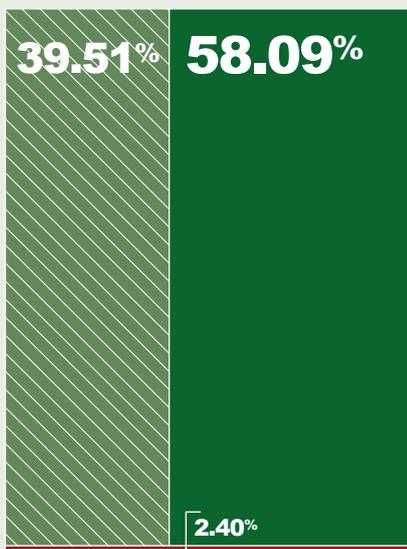
**Improved access to current affairs and entertainment**



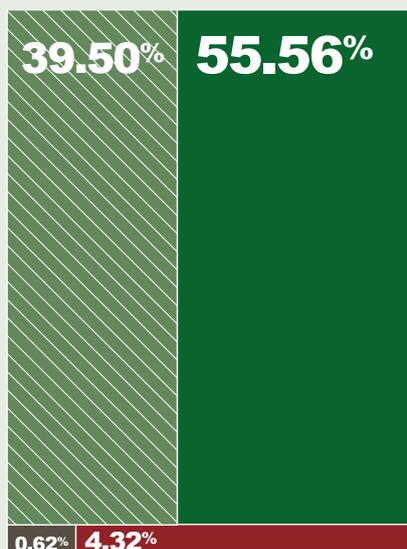
**Cleaner air indoors**

# Customer Satisfaction

Customer Rating of Products



Customer Rating of Service



**97.5%**

of customers said they like the companies' agents.

**98.8%**

of customers said they like the companies' sales staff.

**96.3%**

of customers said they like the companies' customer service staff.

■ Very Good  
 ■ Good  
 ■ Acceptable  
 ■ Poor  
 ■ Very Poor

## Next Steps

The early successes of BGFZ have demonstrated that the Beyond the Grid Fund approach works.

Now, The Government of Sweden has asked REEEP, together with the Nordic Environment Finance Corporation (NEFCO), to expand and improve upon the success of BGFZ by scaling up the existing activities

in Zambia and replicating the BGFZ approach elsewhere in Sub-Saharan Africa, adapting it to three new target markets: Liberia, Burkina Faso and Mozambique.

This new Beyond the Grid Fund for Africa will be launched in 2019.

---

## BGFZ Stories

### Flexible payments for solar lighting

Steven Miyoba (also pictured on the front cover) is a taxi driver, living near Lusaka with his wife Faustina and his daughter Bridget. Though the area has been earmarked for grid expansion, Steven says it will be a number of years before the grid will arrive to his house. Off-grid solutions have made a positive impact on all areas of his life – including his

finances, as Fenix's ReadyPay system is substantially cheaper than traditional lighting methods.

Thanks to the clean, safe lighting provided by the ReadyPay system, the family now spend more time reading together at night. They can also charge their phones at home - something they used to pay neighbours to do for them.

*Bridget, Steven's 6-year-old daughter, is now able to do her homework in the evenings and play until later at night.*



“ Before it would be dark at 6pm and we didn't have any lighting. Now, we have a trusted brand that even my daughter knows how to use.”

**Steven Miyoba**

---

## Clean cooking for a healthy environment - indoors and out

Ester Tembo, pictured with her eight-year-old granddaughter Dorkas, lives in a village an hour outside Lusaka. She and her children and grandchildren farm maize and vegetables, and Ester, as the matriarch of the family, often cooks for up to 25 people. Her SupaMoto efficient stove makes this job much quicker and safer, as the charcoal stove she used before led to high levels of carbon monoxide in her home. The SupaMoto, sold by Emerging Cooking Solutions, uses pellets made from sustainable forestry waste, and so it reduces deforestation, too.



## Mary's shop in Katoba

Mary Mpupuma is VITALITE Zambia's agent in Katoba village. She uses the television in her shop – a product she also sells – to show educational programmes on issues such as cholera prevention and good farming practices. Many of Mary's customers visit her shop just to watch these programmes.

“ I attend community meetings and go to churches where I teach people to move away from candles and batteries and to move towards cleaner options. I teach them about health, the environment and farming practices. And I teach them about Vitalite. They are very interested.”

**Mary Mpupuma**



 **BEYOND THE GRID**  
FUND FOR ZAMBIA



 Sweden  
**Sverige**

POWER  
AFRICA 

**REEEP**<sup>®</sup>

---

[www.bgfz.org](http://www.bgfz.org)